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the discomfort of dampness and sharp blows, saw meaning in the eaves. They sought shelter, and to seek shelter means to follow a promise and to be controlled by a possible future. It is this difference of control which marks the entrance of conscious behavior upon the stage of the world.

It is then because Professor Mathews has ignored what is distinctive in conscious life that he has rendered consciousness quite unintelligible. This does not mean that students of philosophy who are intent upon the question of consciousness have not much to learn from a book of such scope as this. Only by working in conformity with established scientific facts in regard to the structure and functioning of the nervous system can they hope to make progress with the problem of consciousness. But the obligation is not entirely one sided. Such guesses as Professor Mathews has made in regard to consciousness should serve as a warning to his fellow scientists, that the nature of consciousness will never be revealed by a purely physiological or physiological-chemical analysis. Such an analysis when attempted seems to have less in common with scientific procedure than with the immortal adventure of "Hunting the Snark."

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The Essentials of Logic. R. W. SELLARS. Boston: Houghton, Mifflin Company. 1917. Pp. 343.

In many respects Professor Sellars's book has the merit of putting the subject-matter of logic before the student from the viewpoint of the present day. He has profited by recent discussions in his field, and has introduced in a profitable way not a few extracts from recent authorities. Another merit is the large number of fresh examples—often intrinsically superior. His style is clear, and often sententious and forceful. Among many excellent discussions may be noted the chapters on definition, fallacies (with the improved division of the subject), and hypotheses.

Pedagogically one finds ground for discontent. The author intimates that students have frequently asked him "whether logic is a practical subject." This inquiry—assuredly not an unreasonable one—is probably present, even when unexpressed, in all undergraduate logic classes. In the face of it, a wise exposition of the subject would seem to involve a representation of logical questions and principles as arising out of the needs of everyday life, and logical processes as simply extensions of ordinary thinking and critical improvements upon it. Such a course is not feasible, however, if, as in the book under review, argumentation occupies the first third or more of the treatment and is introduced by an abstract

chapter of definitions. As well might a physical director, after a few general statements, set his beginners immediately at fencing. At the outset logic is defined as "the science of . . . correct thinking," and thinking, the author tells us, is "the operation which underlies knowledge and opinion and makes them possible." It would seem, then, that "thinking" must include all forms of cognitive consciousness; but this inference is promptly denied us, perception not being knowledge. "Knowledge is primarily an affair of conception, of rules and principles." Surely the student may be pardoned some doubt as to the practicality of logic when it starts in by assuring him that knowledge of his seatmate consists not in seeing or touching or hearing him, but in recognizing that such class names as *mammalia* and *bimana* apply to him! We are told, quite commendably, that logic "desires to see how knowledge is built up." It is reasonably to be hoped that every intelligent college student would share this desire, if only a perverse definition (as it must seem to him) were not first given to knowledge; and if only the inquiry began with what seems to him his surest knowledge—his percepts—and then (following the lead of the subject-matter) the way ideas arise from experience, and the uses they have in thought and life, were clearly set forth. Our author, however, following traditional usage, assumes the existence of ideas (they are knowledge, and knowledge is the *datum* of logic!) and proceeds to point out means of manipulating them effectively. Of course, much concerning the genesis and primary function (interpretation, *etc.*) of ideas is given later—much later—under the general headings of induction, explanation, *etc.*

The psychological and positivistic distinction between facts and ideas does not appeal to Professor Sellars. Fact, for him, is not an accredited bit of experience, but "that which is admitted for the purpose of the argument"—a definition which, by including true *ideas* as well as empirical facts, blurs the very distinction between fact and theory he is dwelling upon, suggesting, for example, that it is the same as that between premise and conclusion, and excludes from logic the clearest and most useful application of the principle of positivism, the claim, namely, of the man of science that accredited empirical facts, *qua* empirical, are more certain, trustworthy, and authoritative than any *ideas* whatever, whether granted or disputed. Argumentation, thus entered as the first case on the docket, is nevertheless interrupted in the traditional way by a chapter on classification, in which for the time words give place to things as the subject of discourse. One does not see why all that in this chapter serves argumentative purposes could not be included in the chapter on

terms, nor why, by the way, the discussion of terms should precede the chapter on language.

Our author's conceptual bias is manifest again in his treatment of explanation. This appears toward the end of the book, and six chapters after the discussion of hypothesis. Is there, then, no close relation between hypothesis and explanation? It would appear not, for we are assured that "all explanation is in its essence deduction"; that is, it consists in showing that the thing in question "follows from something else already known"—a statement which must be read in the light of his definition of knowledge as an "affair . . . of rules and principles," or the deductive aspect will be far from evident. "We move downward," he says, "from rules to cases, from principles to their exemplifications." Do we? A boiler explodes. We explain it by the expansive power of superheated steam. Here are an empirical fact (the explosion) and an idea, or principle. With which of them does thought *begin*? Obviously with the fact. *To what* does it move? To the principle as applying to the fact. If the principle itself is not new, that is, if it is one of our tested ideas, the explanation process consists in trying one idea after another upon the challenging object until we find the one that fits. Surely it is straining terms to call that process deductive. It seems to be quite akin to ordinary identification by means of classes, and as little as in that process to be a starting with a principle and by means of it finding the fact. When the explanation of the explosion was made for the first time the interpreting idea was even more evidently at the end of the thought process, not the beginning. Then the inquirer had to *achieve* the principle, and he necessarily achieved it through critical study of empirical facts—working from experience to some satisfactory idea. This is the process of hypothesis formation and development, and is plainly inductive. Moreover, general explanation—the kind the author has in mind—is by no means the only kind. In common life our "whys" more often seek concrete answers. Why did consols go off three points yesterday? Why did Virginia's cake fall? are demands for explanation which are not to be satisfied without concrete particulars. No doubt one can put general principles behind the heavy sales of some banking house, or the unwise opening of the oven door, just as the Hegelian can always reduce any situation to a plexus of universals; but that conceptual block building is never what is actually sought in explaining a practical difficulty. The essence of explanation, as Jevons and Dewey have made evident, is in the clarification of the mental outlook which occurs when a new object is related harmoniously with our prior knowledge, that is, when our system of facts and meanings (ideas)

is enlarged so as to include the new *datum*. In this process fact and idea, precept and concept, are used without partiality and with reference only to the service rendered to the system.

The author's discussion of the syllogism has original features, but on the whole overstates the mechanical side. The valid moods, for example, are determined by inspection, when, if the movement of thought in the several figures is really comprehended, including a very few evident implications, the student will mentally deduce the moods with only a few minutes' reflection. A good feature of the book is the chapter on testimony and circumstantial evidence. The concluding chapter is taken up with an interesting discussion of truth and its tests, pragmatism naturally coming in for critical attention, but not, as the pragmatist will think, for adequate appreciation.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. July, 1917. *On Cosmic Reversibility* (pp. 361-377): BENJAMIN W. VAN RIPER. - It is usually admitted that reversibility is an implication of a mechanical view of the universe. The present paper maintains that even in this respect too much has been conceded to mechanism. The inapplicability of the concept is shown with respect to human-made machines, science, mathematical equations, and to spatial series. *Leibniz and German Idealism* (pp. 378-394): HIRALAL HALDAR. - The thesis here is that the great idealistic systems of Germany have been dominated by the central conceptions of Leibniz. "Leibniz's way of conceiving of the ultimate reality is, in essence, also that of Kant, Hegel, and Lotze." *The Subject-Object Relation* (pp. 395-408): HENRY E. BLISS. - Largely a series of distinctions and definitions with respect to such concepts as reality, appearance, external, internal, consciousness, mind, object, subject, perception and percept, undertaken with a view to showing the false basis of a phenomenalist or idealistic empiricism. *Discussion: The Dualism of Mr. P. E. More*: CLARISSA RINAKER. - "It is the purpose of the present paper to show that the system of philosophy which Mr. More has set forth in his 'Definitions of Dualism' in the eighth volume of *Shelburne Essays* is not really dualistic; that in its practical working it is partly pragmatic and that in the last analysis it is essentially idealistic." *Review of Books*: John Dewey, *Essays in Experimental Logic*: R. F. ALFRED HOERNLÉ. Gustave Le Bon, *The Psychology of the Great War*: ERNEST ALBEE. Henry Wilkes Wright, *Faith Justified by Progress*: